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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,168	11/22/2000	Clifford Brown	21-006	3876

22898 7590 10/30/2007  
ISHIMARU & ZAHRT LLP  
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SUNNYVALE, CA 94087

EXAMINER
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KIM, KEVIN

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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10/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/722,168	BROWN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kevin Y. Kim	2611	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-14,17-19,33-54,56-62,70 and 73-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17,19,33-53 and 73-80 is/are allowed.
- 6) ☒ Claim(s) 1,4,14,18,54,62 and 70 is/are rejected.
- 7) ☒ Claim(s) 3,5-13,40 and 56-61 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed August 17, 2007 have been fully considered but they are not persuasive.

Applicant argues that the Armstrong patent “does not show a phase noise detector but only an example of what Armstrong Fig.5A-F indicates are “IMPAIRMENTS WITH RESPECT TO ROTATED EYE.” However, Fig. 6 clearly shows a calculating means outputting a noise, thus reading on the claimed phase noise detector. Moreover, phase jitter as well as phase noise as illustrated in Figs. 5B and 5C respectively reads on phase noise recited in the claim. Applicant has not distinguished between phase jitter and phase noise.

Applicant argues that the Armstrong patent fails to disclose “a sorter,” citing a description in the Armstrong patent regarding the calculating means. However, the calculating means clearly teach reading X and Y eye data from the receiver each baud time. Since the claim fails to define the exact function of the sorter, the calculating means reads on the limitation because it reads sequentially, thus sorting the data.

Regarding “a rotator,” see the Abstract describing the rotation of sampled eye diagram information.

Regarding “a comparator,” the statistical properties can be obtained by comparing the rotated sampling points to the ideal sampling points.

Regarding “a compression detector,” applicant fails to distinguish between the (frequency) compression and the frequency offset.

Regarding “an interference detector,” the noise is also considered as interference.

Regarding claims 4 and 18, applicant fails to distinguish the claimed vector and the vector disclosed in the Armstrong patent.

***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1,4,18 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Armstrong (US 4,381,546 submitted by applicant as part of IDS filed on September 12, 2006).

Claims 1 and 54.

Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:

a phase noise detector (5C) comprising;

a sorter (see col.3, lines 44-68);

a rotator coupled to the sorter (see col.4, lines 5-6); and

a comparator (see col.4, line 18-21) coupled to the rotator;

a compression detector (5A);

an interference detector (5B); and

a constellation storage coupled to the phase noise detector, the compression detector, and the interference detector. Although the constellation storage is not shown its presence is easily inferred because in order to compare the rotated signal points to the ideal signal points, "a constellation storage" must be present to prestore the ideal signal points such as shown in Fig.3A.

Claims 4 and 18.

See col. 4, lines 7-13 for the recited vector. Specifically, a vector utilizing a matrix of  $(1-j1)$ ,  $-1-j1$ ,  $-1+j1$  and  $1+j1$ , which are in fact cosine and sine matrix is multiplied to received signal points.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 14, 62 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong.

Armstrong fails to teach that the interference detector (Fig.5A) comprises an error calculator, a distribution chart and a data peak detector. But Armstrong teaches comparing statistical properties of constellations and an error calculator, a distribution chart and a data peak detector would have been obviously included in the interference detector since these are well known parameters used in statistical analysis.

***Allowable Subject Matter***

6. Claims 17,19, 33-53, 73-80 are allowed.

7. Claims 3,5-13,40,56-61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 28, 2007

AU 2611

KEVIN KIM  
PRIMARY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Kevin Kim", is written over the printed name and title.